

**GREVILLEA DONALDIANA (PROTEACEAE),
A NEW PLANT SPECIES FROM THE KIMBERLEY DIVISION
OF WESTERN AUSTRALIA**

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ABSTRACT

A new species *Grevillea donaldiana* occurring in the Kimberley Division (Northern Botanical Province) of Western Australia is described and illustrated. It differs from all other members of the Proteaceae by having only three tepals instead of the usual four.

INTRODUCTION

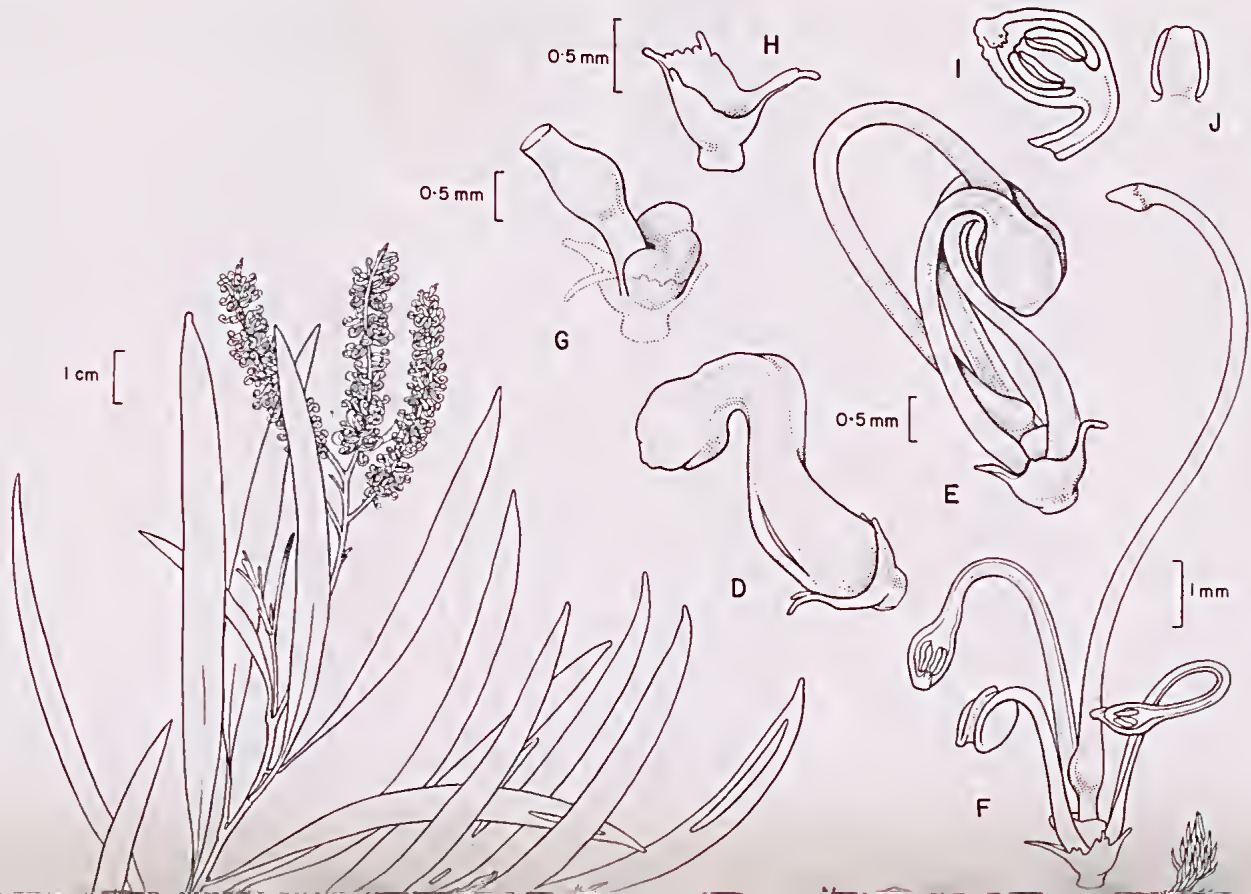
For some years the Western Australian Naturalists' Club (Inc.) has been instrumental in promoting long range Kimberley field trips. The aims of these expeditions are to increase knowledge of the region, involve amateurs in biological survey techniques and at the same time minimizing the cost to scientists in mounting collecting expeditions to remote areas. It was on one of these trips to the Sale River region undertaken in May 1986 that *Grevillea donaldiana* was first collected.

The expedition, comprised of 16 personnel, left Broome on 10 May 1986 aboard the charter vessel "Wave Spirit". On 12 May the "Wave Spirit" anchored in Doubtful Bay at the mouth of the Sale River and at high tide the expedition party took to dinghies to explore the river (Fig. 2).

On the journey upstream I observed, through binoculars, a number of flowering trees of an unknown *Grevillea* species which were growing on the scree slopes and ledges above the sheer sandstone cliffs that abut the river. The dinghies were secured alongside the cliffs while Kevin Coate, Geoff Lodge and I climbed the steep sandstone to reach the plants. In many instances the flowering branches of the *Grevillea* projected out from the cliffs, to hang above the river, making collecting of samples extremely hazardous.

On 16 May, at a different location along the river, the three of us again climbed the cliffs and made further collections of the *Grevillea*.

On my return to Perth specimens of the *Grevillea* were given to Margaret Menadue to prepare botanical illustrations. It was during the preparation of the drawings she noted the flowers were all trimerous. Duplicate material was forwarded to Mr D.J. McGillivray and Mr R. Makinson at the NSW National Herbarium who are currently revising *Grevillea* and they confirmed it was an undescribed species and expressed considerable interest in the trimerous flowers.



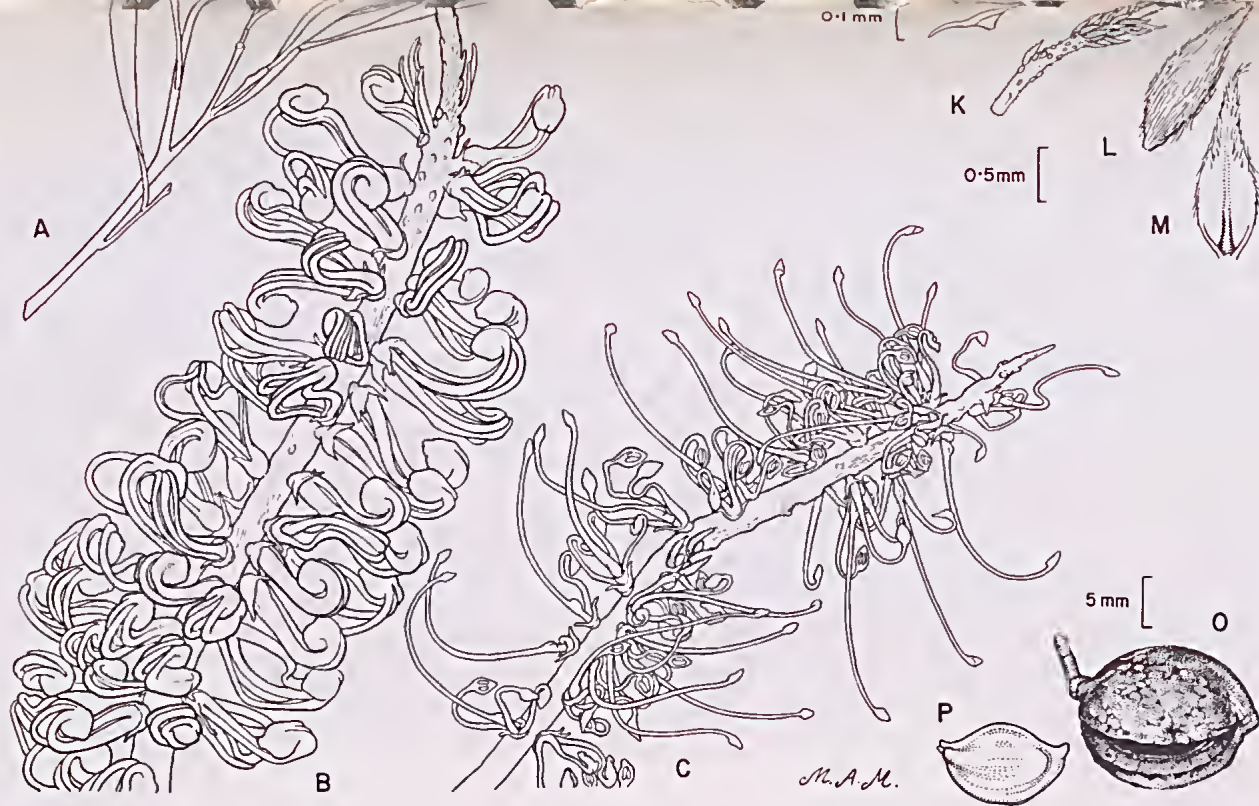


Figure 1. *Grevillea donaldiana*. A — flowering branch; B — young inflorescence; C — mature inflorescence; D — flower bud; E — unopened flower; F — flower; G — nectary; H — toral rim; I — tepal limb with anther; J — dorsal surface anther; K — sterile apex of inflorescence; L — inflorescence bract, dorsal surface; M — inflorescence bract, ventral surface; N — bifid trichomes from bracts; O — fruit; P — seed.

A—N from K.F. Kenneally 9676 (the Type); O and P from K. Coate s.n.



Figure 2. Members of the expedition party travelling by dinghy up the Sale River.

In May of 1987, Kevin Coate lead another expedition to the Sale River with the express purpose to sample the population of *Grevillea donaldiana* to see if the species was consistently trimerous. One of the expedition members was Margaret Menadue the botanical artist who had prepared the drawings shown in figures 1 and 3. Margaret and Kevin were able to make first hand observations on the *Grevillea* in the field and confirm it was consistently trimerous. Additional collections were made and mature fruits, some containing seed, were also obtained.

TAXONOMY

Grevillea donaldiana Kenneally, sp. nov. (Figures 1 and 3).

Folia anguste elliptica aliquantum curvata, pilis appressis bifidus obtectis, marginibus aeneis coloratis. Inflorescentia paniculata ad 15 cm longa. Flores glabri albi; rimus tori profunde et irregulariter lobatus; tepala 3, uno dorsali et duobus ventralibus, lamina 4-6 mm longa; nectarium prominens hippocrepiforme; praebitor pollinis late conicus. Fructus lignosus, lenticularis, 2-2.5 cm diam., manifeste apiculata. Semina semicircularia c. 1.5 cm longa.

Typus: Banks of the Sale River, Kimberley Division of Western Australia (15°59'S, 124°39'E), 16 May 1986, *K.F. Kenneally* 9676 (holo: PERTH; iso: BRI, CANB, K, NSW).

Shrub or tree to 10 m. Bark greyish brown with shallow linear fissures. Stem bark reddish brown, the young stems covered with an indumentum of reddish brown bifid appressed hairs that become grey with age. Leaves alternate, simple, papery, petiolate, narrowly elliptical, often somewhat curved, c. 12 cm x 0.8 cm, densely covered with appressed silvery hairs with a bronze flush along the margins and at the apex; lateral veins numerous, more or less parallel with the midrib; petiole c. 0.7 cm long. Inflorescence terminal, paniculate, to 15 cm long; branches covered with a dense, appressed rusty indumentum of bifid hairs; bracts imbricate, conspicuous in bud, broadly to narrowly ovate, acute, c. 2 mm long, densely appressed pubescent below, sparsely so above, deciduous before or during anthesis. Flowers glabrous, white, strongly scented; pedicels 1 mm long; torus \pm transverse; toral rim deeply and irregularly lobed with the lobes up to 0.7 mm long; tepals 3, one dorsal and two ventral; lamina linear, broadest at base, 4-6 mm long, limb ovoid c. 1 mm long; nectary prominently U-shaped; pistil c. 10 mm long; stipe c. 0.5 mm long; pollen presenter erect, broadly cone-shaped c. 0.5 mm high. Fruit woody, lenticular 2-2.5 cm diam., with thick valves, prominently apiculate. Seeds semi-circular, c. 1.5 cm long.

Other specimens examined. Sale River; *Kenneally* 9575 (PERTH); 12 May 1987, *K. Coate* s.n. (BRI, CANB, DNA, K, NSW, NY, PERTH).

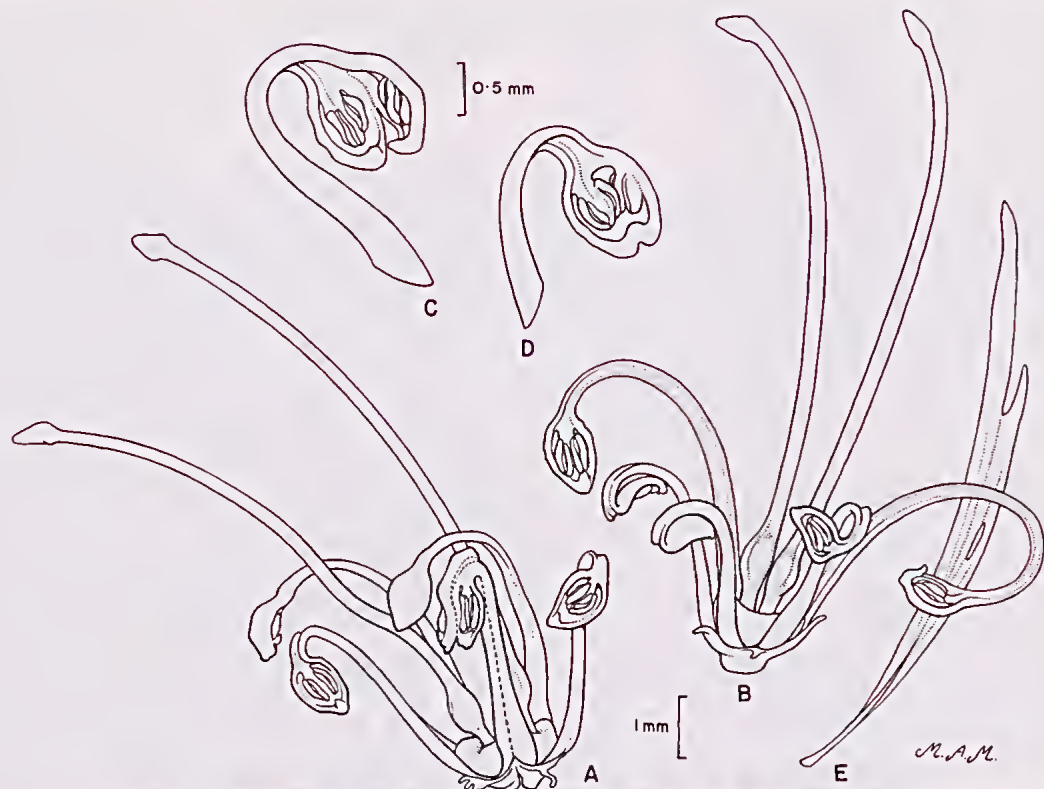


Figure 3. *Grevillea donaldiana*. A & B — digynous flowers; C & D — tepal limb with twinned anthers; E — leaf. (From Kenneally 9676 — the Type.)

Distribution. Known only from the Sale River (Gardner District, Northern Botanical Province — Beard, 1980) where it occurs as a scattered population on sandstone scree below massive cliffs.

Flowering Period. May.

Etymology. The specific epithet honours Donald J. McGillivray for his contribution to Australian botany particularly his study of the genus *Grevillea*.

DISCUSSION

Grevillea donaldiana is unique in the Proteaceae in possessing only three tepals instead of the usual four and in having a cup-shaped, irregularly lobed toral rim. Toral appendages of this sort have not been seen in any other species of *Grevillea* (R. Makinson, pers. comm.). Occasional flowers exhibit digyny and have up to five tepals. This appears to have arisen by the fusion of two florets.

According to R. Makinson (pers. comm.) *Grevillea donaldiana* appears to be closely related to *G. myosodes* but differs in that the latter species is a shrub with longer pedicels, wider leaves and an entire toral rim.

ACKNOWLEDGEMENTS

The assistance and companionship of all members of the 1986-87 Naturalists' Club Sale River Expeditions is gratefully acknowledged. To Kevin Coate (organiser) and Dave Bleach (Skipper, "Wave Spirit") I extend my thanks for their professional expertise. Daphne Choules Edinger (Honorary Research Assistant) processed all of the specimens and provided outstanding assistance in the field.

Figures 2 and 3 were expertly drawn by Margaret Menadue. My thanks to Paul Wilson for his taxonomic advice and professional guidance in the preparation of this paper.

The assistance of Bob Makinson (National Herbarium of NSW) and his willingness in providing advice on the relationship of those Kimberley *Grevillea* species with affinities to *G. donaldiana* is gratefully acknowledged.

REFERENCE

- BEARD, J.S. 1980. A new phytogeographic map of Western Australia. *W.A. Herbarium Research Notes* 3: 37-58 (& map).